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Frank A. Mathewson
Government Affairs Director

June 16, 1993

Room 1142M1
295 North Maple Avenue
Basking Ridge, NJ 07920
908 221-3063
FAX 908 221-8484
AT&T MAIL lmathewson
Suite 1000
1120 20th Street, N.W.
Washington, DC 20036
202 457-3300
FAX 202 293-1049

Ms. Donna R. Searcy, Secretary
Federal Communications Commission
1919 M Street, NW, Room 222
Washington DC 20554

RE: Gen. Docket 92-9 Ex parte Presentation

Dear Ms. Searcy:

Pursuant to Section 1.1206 of the Commission's Rules, this is to advise that on June 16, representatives of AT&T met with members of the Common Carrier Bureau. The purpose of the meeting was to demonstrate the results of AT&T's 6 GHz PCS experimentation and to support our previously submitted comments in the above proceeding that selected frequencies above 3 GHz be reserved by the Commission for future use by PCS and other emerging technologies.

Attending for AT&T in addition to the undersigned were Richard Adleman, John Daly and Eshwar Pittampalli. The CCB attendees were Bob James, Kal Krautkramer, Eric Bennett, Charles Gratch, Thomas Tycz, Jay Jackson, Myron Peck, Carmen Borkowski, Tuan Pham, Steve Markendorff and Nancy Boocker.

The attached presentation materials were used during the meeting. Any comments which may arise in this matter may be directed to me.

Sincerely,

A handwritten signature, likely of Frank A. Mathewson, written in dark ink.



AT&T PERSONAL COMMUNICATIONS SERVICES (PCS) TRIAL AT 6 GHZ

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AT&T PCS TRIAL AT 6 GHz

Agenda

Why We Are Here

**Frank Mathewson,
Government Affairs Director**

Trial Description

**Rich Adleman, Division Manager
Personal Communications Services**

Demo Introduction

Rich Adleman



AT&T PCS TRIAL AT 6 GHz

Why We Are Here

- **Summarize AT&T's 6 GHz PCS trial experiences**
- **Demonstrate the technical feasibility of 6 GHz for future PCS or other mobile voice services**
- **Encourage the FCC to reserve a portion of 6 GHz and other selected frequencies for future use by mobile services**



AT&T

ADVANTAGES OF RESERVING

TECHNIQUES FOR THE FUTURE



AT&T PCS TRIAL AT 6 GHz

Objectives

- **Establish technical feasibility of 6 GHz spectrum for PCS**
- **Demonstrate technical feasibility of system equipment at 6 GHz**



AT&T PCS TRIAL AT 6 GHz

Highlights

- **Experimental licenses for PCS Trial granted - October 10, 1991**
- **Three cities (Boston, Atlanta, and Los Angeles) were selected for technical study**
- **Outdoor, indoor and tunnels have been studied for propagation characteristics**
- **A lightweight handset has been developed**
- **A complete network infrastructure has been established in Boston**
- **Six FCC Quarterly reports have been issued (January 15, 1992 - April 16, 1993)**



AT&T PCS TRIAL AT 6 GHz Key Milestones

| | |
|---|-----------------|
| Installation of Mobile Switching Center (MSC) at Lawrence and Cell Site at Bear Hill | 6/8/92 |
| First Call Placed on Network | 6/16/92 |
| Upgrade of Bear Hill to 8 Sectors with Std. Gain Antennas | 9/30/92 |
| Installation of High Gain Fan-beam Antennas on New Tower | 11/23/92 |
| Bear Hill Network Validation Testing (NVT) Complete | 1/14/93 |
| Sumner/Calahan Tunnels Propagation Testing Complete | 2/10/93 |
| Initial Propagation Coverage Testing in Smyrna, GA, and Baldwin Hills, LA, Completed | 3/11/93 |
| Installation of Cell Site at 100 Federal w/12 Sectors to be Completed | 6/15/93 |



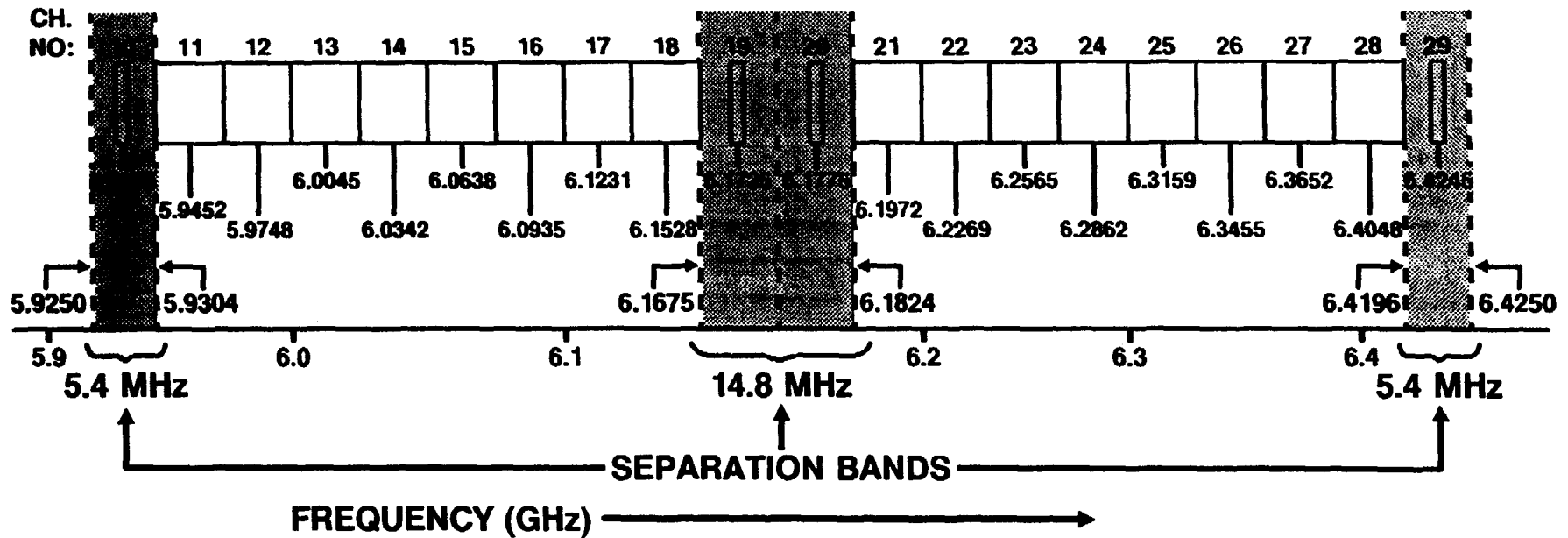
AT&T PCS TRIAL AT 6 GHz

Frequency Plan

6 GHz COMMON CARRIER SPECTRUM ALLOCATION REGULAR T PLAN

29.65 MHz SERVICE CHANNELS (11-18 & 21-28)

190 kHz AUXILIARY CHANNELS (10, 19, 20, & 29)





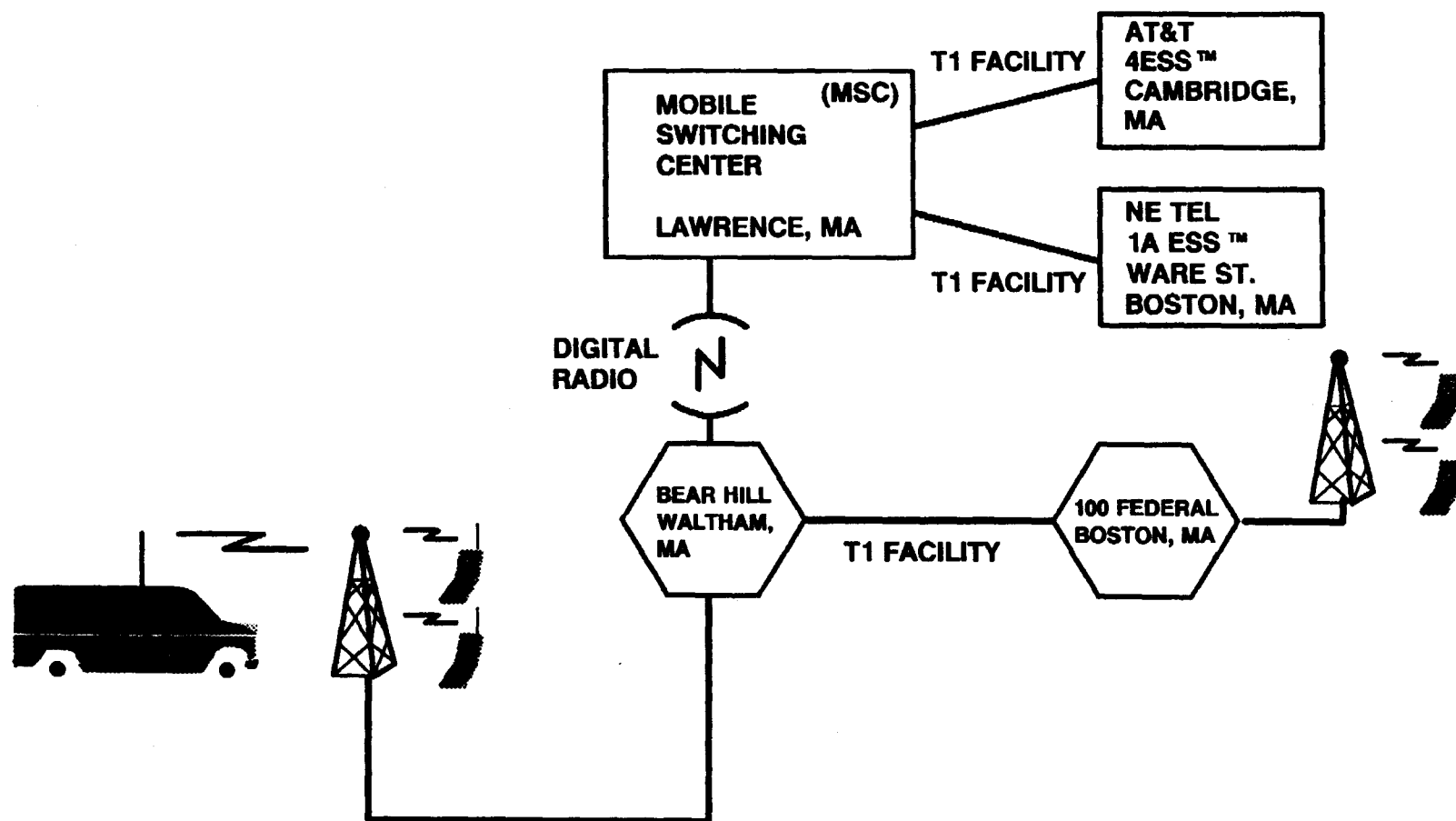
AT&T PCS TRIAL AT 6 GHz

Boston Infrastructure

- **Mobile Switching Center (MSC) in Lawrence, MA**
- **Cell sites**
 - **Bear Hill, Waltham, MA**
 - **100 Federal, Boston, MA**
- **Mobiles**



AT&T PCS TRIAL INFRASTRUCTURE



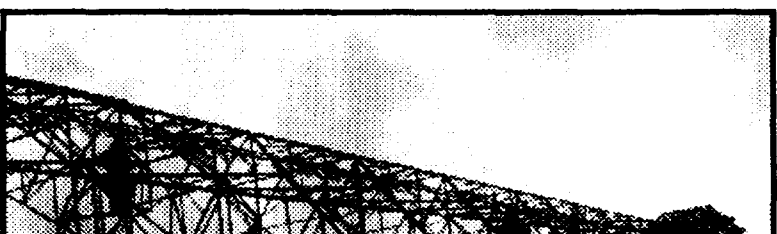


AT&T PCS TRIAL at 6 GHz Mobile Switching Center (MSC) Lawrence, MA





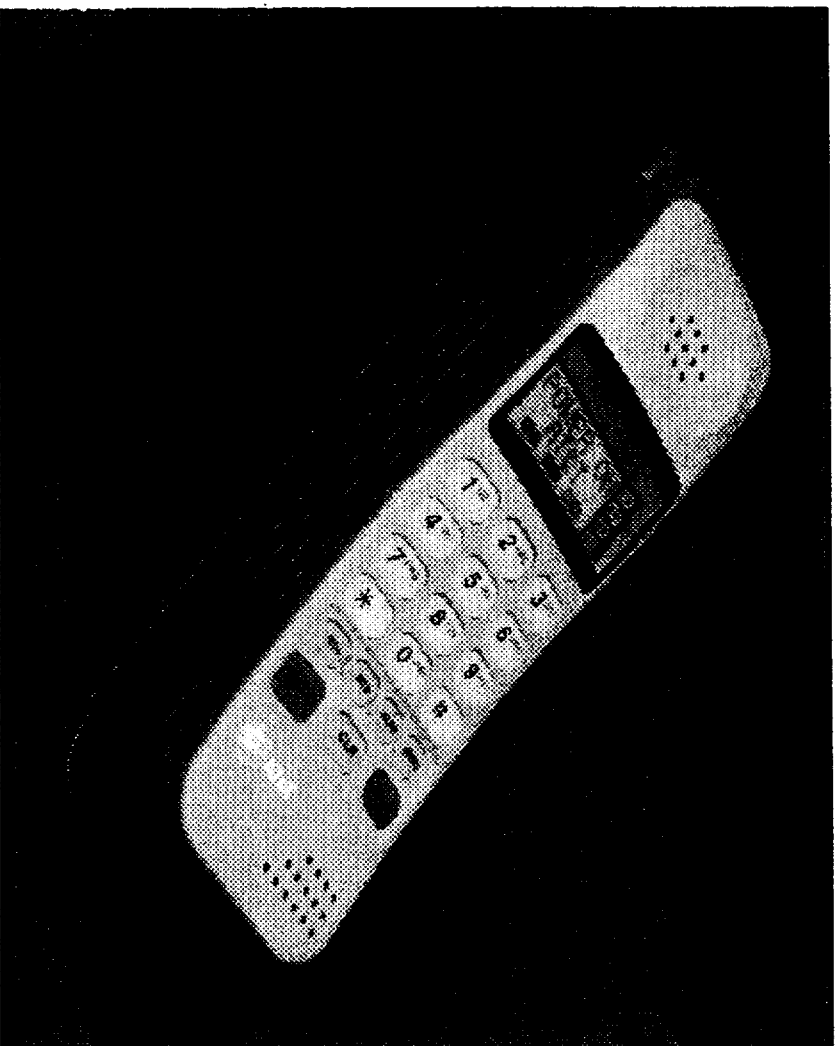
AT&T PCS T Bear Hill C Walth







AT&T PCS TRIAL at 6 GHZ Handset





AT&T PCS Handset C



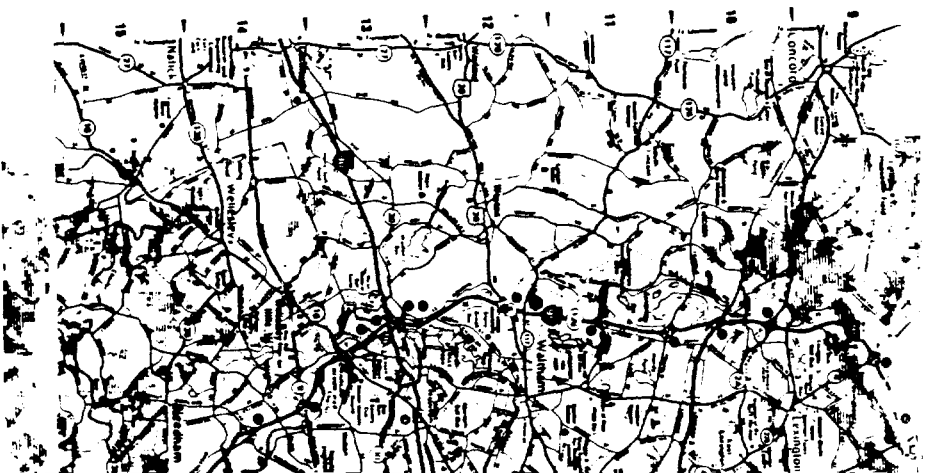


AT&T

AT&T PCS

Boston

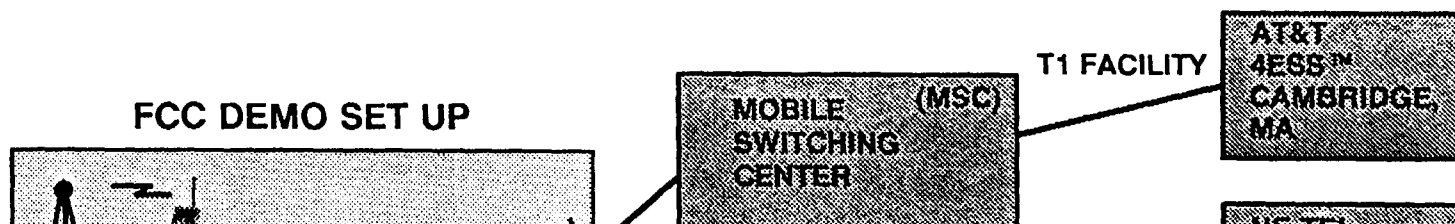
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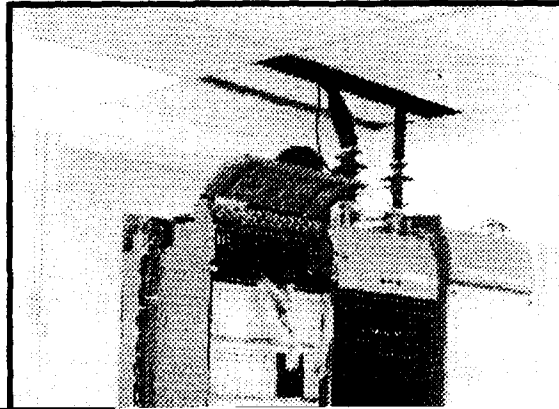
AT&T

AT&T PCS TRIAL INFRASTRUCTURE WITH FCC DEMO SITE



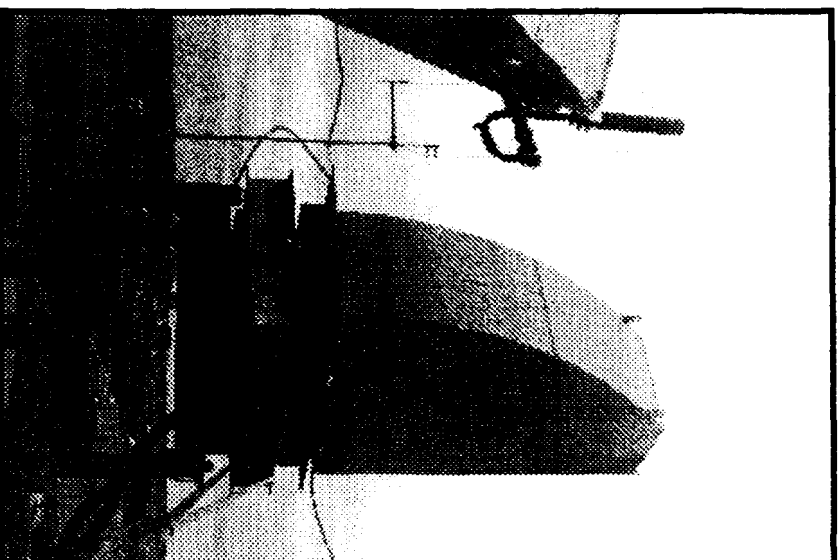


AT&T PCS DEMO at 6 GHz Washington, DC Cell Site





AT&T PCS DEMO at 6 GHz Washington, DC Cell Site Antenna





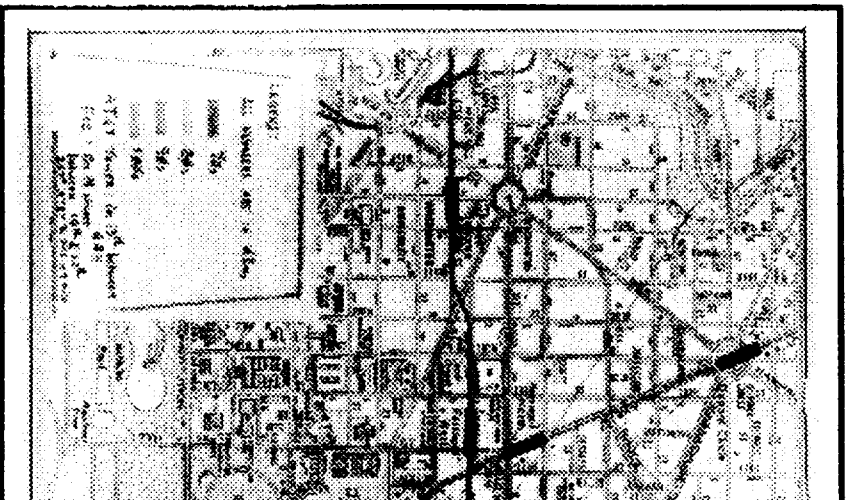
AT&T PCS DEMO at 6 GHz

Washington, DC Cell Site (View from antenna)



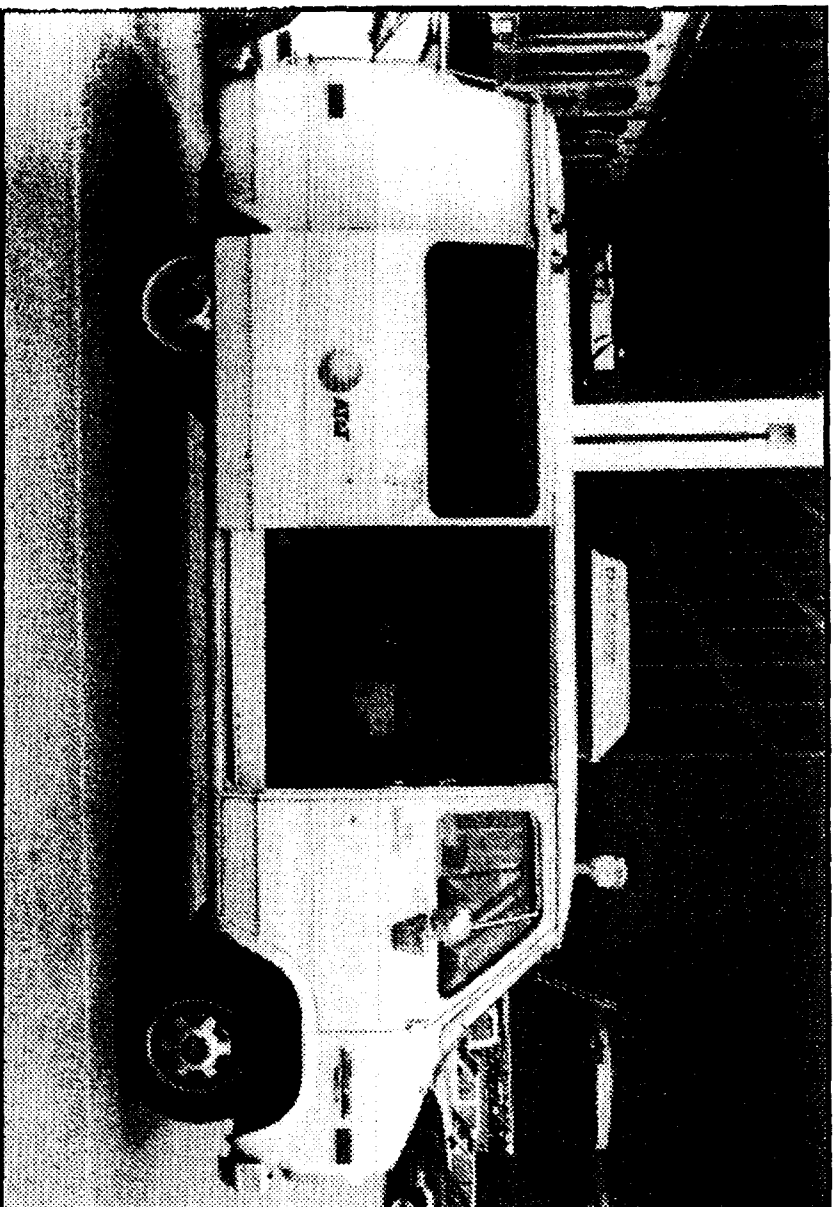


AT&T PCS I Area Co





AT&T PCS TRIAL at 6 GHz Propagation Coverage Measurement Van



6 GHz AT&T PCN Trial Handset Safety Summary

AT&T initiated an independent study in November 1991 at the University of Utah by the Department of Electrical Engineering on the subject of "6 GHz AT&T PCN Trial Handset Safety Analysis". Recent results from the study concluded that the AT&T 6 GHz PCN Trial handset complies with recognized industry safety guidelines (IEEE C95.1 - 1992). The complete report is being reviewed in the technical community and will be published in a recognized technical journal following completion of this review.

Revised safety guidelines (IEEE C95.1 - 1992) relative to human exposure to radio frequency electromagnetic fields (3 kHz to 300 GHz) have recently been approved by the Institute of Electrical and Electronics Engineers (IEEE) and by the American National Standards Institute (ANSI). According to these guidelines, an electromagnetic exposure condition can be considered to be acceptable if it can be shown that it produces mass - normalized rates of energy absorption (Specific Absorption Rates or SARs) "...below 0.08 W/Kg as averaged over the whole body and spatial peak SAR values not exceeding 1.6 W/kg as averaged over any 1 g of tissue (defined as a tissue volume in the shape of a cube)".

The Utah study applied numerical and experimental techniques to evaluate the SAR distributions in the human head (and body) for the AT&T PCN Trial handset antenna configuration. For the numerical and experimental analysis, both spatial (volume - 1 g cube) and time averaging (15 minutes) principles were applied per the standard. These results provide key measurements of spatial distribution of the SARs: (1) a peak SAR of 1.55 W/kg obtained for the region of the right ear lobe closest to the transmitting antenna; (2) local SARs in the brain-equivalent material which are considerably lower than the guidelines; and (3) a whole-body averaged SAR of .00035 W/kg. These results comply with the Maximum Permissible Exposure limits.